

all white oaks except one, and that an old rough barked red oak. With the rain running off themselves in streams, the members of the party investigated closely and saw that drops of water, gathering on the vertical, slightly concave plates of bark on the white oaks, condensed at the lower tip of the plates, which bend outward slightly and dropped off. Where they struck the butt of the tree two or three feet below, a mass of foam was gathered, constantly renewed as the bubbles burst, by the drops falling from above.

The bubbles had what appeared to be a slightly soapy consistency. Was this effect purely mechanical, or was there some soapiness in the water dripping from the oak bark scales? Could this water be a mild solution of tannic acid and would this be soapy enough to form bubbles when aerated in descent and striking on the bark below? These frothy patches were not seen on smooth barked trees, those with sweet sap, like maples and black birches; the only other species on which they were observed was a rough barked red oak. It was somewhat of an offset to the drenching everyone suffered, to speculate on the cause of these patches of bubbles.

RAYMOND H. TORREY

PROCEEDINGS OF THE CLUB

MEETING OF MARCH 13, 1928

This meeting was held at the American Museum of Natural History, and was called to order at 8:25 P.M. by President Denslow. The following were unanimously elected to membership in the Club:

Dr. Charles W. Ballard, College of Pharmacy of Columbia University, 115 W. 68th St., New York City.

Miss Fanchon Hart, College of Pharmacy, Columbia University, 115 W. 68th St., New York City.

Mr. Victor Lewitus, College of Pharmacy, Columbia University, 115 W. 68th St., New York City.

Mr. Lorens F. Logan, 115 Broadway, New York City.

Dr. William S. Thomas, 1175 Park Ave., New York City.

Miss Helen A. Timmerman, College of Pharmacy, Columbia University, 115 W. 68th St., New York City.

The resignation of Mr. Ludlow Griscom was accepted with regret.

The Secretary read the proposition regarding the election of delegates and representatives to various societies, which had been discussed at the previous meeting and recommended as an article of the Constitution. He also proposed that the second regular meeting in March be held at the Brooklyn Botanic Garden, which was so voted by the Club.

The scientific part of the program consisted of a talk by Professor O. P. Medsger entitled "Experiences of a Field Botanist." Professor Medsger spoke of his early life on a Pennsylvania farm, where he became interested in the identification of plant species. The self-given training in logic, botanical terminology and nomenclature he received through the constant use of Gray's Manual was invaluable. He soon became particularly interested in the seeds of the various species, and now has a collection of 2000 species put up in small vials. It was through detection of differences in the seeds that he was able to distinguish a new species of *Cassia* which he sent to Dr. J. N. Rose. Dr. Rose suggested the name *C. Medsgeri* for the new species. Professor Medsger urged a more careful study of the seeds of our native plants. By the seed characters just as well as by the floral parts, one should be able to recognize each species. Being in poor health for a time, he was advised to "rough it" in the West, and so assisted Dr. H. M. Hall in his work on the Botanical Survey of the San Jacinto Mountains. Apropos of collections made at that time, he exhibited cones of the two species of *Pseudotsuga*, and of *Pinus ponderosa* and *Jeffreyi*. *Pinus ponderosa* and *Jeffreyi* are similar, but the latter has a darker bark, and larger cones. Cones of the nut pines and also one of *Pinus Coulteri*, the last weighing three pounds, were shown.

Lantern slides were shown of various plants which the speaker had photographed. The value of a cloudy or rainy day, when, by a long exposure, the pubescence of plant parts can be clearly brought out, was demonstrated. Grasses in flower show to better advantage against a dark background. Other slides, such as the large and small yellow lady's slippers, and the rare ram's head lady's slipper were also projected.

ARTHUR H. GRAVES

Secretary.

MEETING OF MARCH 28, 1928

This meeting was held at the Laboratory Building of the Brooklyn Botanic Garden, with Vice-President Gager in the chair. The meeting was called to order at 3:45 P.M. The minutes of the meetings of February 29 and March 13 were read and approved with the alteration noted below.

The Secretary remarked on the proposition made at a previous meeting that the words "in uneven years" be omitted from the article regarding the election of delegates and representatives of the Club to organizations with which it is affiliated, this article to be voted on at a subsequent meeting. It was voted by the Club that the minutes be altered by the omission of these words.

Mr. Harold C. Bold, 435 W. 117th St., New York City, was unanimously elected to membership.

The scientific part of the program consisted of a lecture by Dr. George M. Reed entitled "Physiologic Races and the Inheritance of Resistance in the Cereal Smuts." An abstract of this lecture prepared by Dr. Reed follows:

"The discovery of physiologic races of smuts greatly complicates the problem of breeding for smut-resistant varieties of cereals. Our recent investigations have demonstrated the existence of at least four well-defined races of *Tilletia laevis* and six of *T. Tritici*. These races are separated on the basis of their behavior on such wheat varieties as Martin, Odessa, Hussar, Turkey and Kanred. While most varieties of winter wheat grown in the experiments have proved to be very susceptible to practically all the collections of bunt, yet these five varieties have shown a variation in their susceptibility or resistance to the different collections. By their use it has been possible to demonstrate that distinct races of both species of bunt or covered smut of wheat exist. Some of these are especially characterized by their ability to infect Martin, Odessa and Hussar, varieties which hitherto have had a reputation for great resistance to bunt.

In all of our experiments with loose and covered smut of oats, the varieties Fulghum and Red Rustproof have consistently been resistant. This was particularly true when

the original collections of smut obtained from Missouri were used for inoculation. These two varieties are grown quite extensively as winter oats in the southern part of the United States. In recent years the variety Fulghum particularly has been grown by the agronomists, and selections obtained which are well adapted to the southern area of the spring oats region. Some of these selections have shown a high agronomic value. One of the strong points in connection with the variety Fulghum has been its resistance to smut. However, we have recently discovered that there is a race of *Ustilago Avenae* which causes severe infections on Fulghum, as well as some other varieties. A distinct race of this same smut has been demonstrated to occur on the Red Rustproof. Consequently, these varieties can not be considered as resistant to all races of smut, but only to certain ones.

There is a large number of other races of oat smuts differentiated on the basis of their reaction to different varieties. Similarly, there is a number of races of the covered smut of barley.

These physiologic races are recognized by their capacity for infecting known varieties of the host. Their behavior is definite and specific. A given variety may possess complete resistance to one race of smut and at the same time be highly susceptible to another. Consequently, in the study of the inheritance of smut resistance, we must use definite specialized races of smuts as well as pure lines of the host varieties.

When known races of smut as well as pure lines of the hosts are used, quite definite results on the inheritance of smut resistance are obtained. A number of crosses between Black Mesdag, very resistant, and Hull-less, very susceptible to both the Missouri races of loose and covered smut of oats, have been studied. In the second generation, out of 465 plants inoculated with loose smut, 107 (23 per cent) have been infected. In a similar series with the covered smut 196 plants were inoculated and 40 (20.4 per cent) infected. Crosses between such varieties as Early Gothland and Hull-less, in which both varieties are susceptible to loose smut, while Early Gothland is resistant to covered smut, have yielded interesting results. The F_2 plants inoculated with loose smut have practically all been infected, while of the 94 plants inoculated with covered smut, 37 (39.3 per cent) have been infected.

Similarly, the varieties Monarch and Hull-less are both susceptible to covered smut while the former is resistant to the loose smut. In the second generation of crosses between these varieties, practically all of the plants inoculated with covered smut have been infected, while of 196 plants inoculated with loose smut 41 (20.9 per cent) plants were infected."

At the conclusion of the lecture, Dr. Harper remarked that the data which had just been presented in a most able manner were at least in part the data forming the basis of the paper which won the A. Cressy Morrison Prize for 1927, offered for the most acceptable paper in a field of science covered by the New York Academy of Sciences or an affiliated Society. He believed that the Club had not yet taken formal recognition of this award, and felt that the Club was to be congratulated on the fact that the prize had been won by one of its own members.

In the discussion of Dr. Reed's paper which followed, Dr. Barnhart inquired if any studies were being made looking toward the possibility of morphological distinctions being present in the physiologic races. Dr. Reed replied that one of his former assistants, who is now at Syracuse University doing graduate work, is studying this phase. Since these smuts are readily cultured, it may be possible to distinguish between them on the basis of their cultural characters. Dr. Trelease asked if all of the seedlings in a pure line variety would get infected. Dr. Reed answered that practically every pure line variety of oats, if it is susceptible, should yield 100 per cent of infection. However, environmental conditions modify the degree of infection more or less—occasionally the results being 90 or 95 per cent infection. Dr. Gundersen and Dr. Barnhart remarked on the possibility of the species being liable to change. Dr. Reed stated that the chances are that races of smuts are developing about as fast as varieties of cereals.

ARTHUR H. GRAVES.

Secretary.

MEETING OF APRIL 10, 1928

This meeting was held at the American Museum of Natural History, being called to order at 8:25 p.m. by Vice President Hazen. By unanimous vote, Mr. Hans Wilkens, 241 South 11th Street, Reading, Pennsylvania, was elected to membership in the Club.

By vote of the Club, according to a recommendation of the Finance Committee, Mrs Trelease was authorized to sell the Third U. S. Liberty Loan bond of \$1000, owned by the Club, and deposit the proceeds in the Central Savings Bank, 14th Street and 4th Avenue, New York City.

The scientific part of the program consisted of an illustrated lecture by Dr. A. B. Stout, entitled "Dichogamy in Flowering Plants." For an account of this subject, reference may be made to Dr. Stout's recent paper, which appeared in the Bulletin of the Torrey Botanical Club for March, 1928, pp. 141-153.

ARTHUR H. GRAVES.

Secretary.

NEWS NOTES

Dr. Fred J. Seaver will issue this year a monograph on the North American Cup-fungi (Operculates). It will be a book of 250-300 pages with colored plates and text figures. It will be the only American monograph of this group of fungi and will be based on over twenty-five years of study. The volume is being published at the expense of the author and the edition will be a limited one. Orders may be placed now with the author at the New York Botanical Garden, Bronx Park, New York.

After nine months absence on a "Quest for grass," L. W. Kephart and R.L. Piemeisel, plant explorers of the U. S. Department of Agriculture, have just returned from Africa with more than 160 lots of seed of grasses and forage plants and 400 specimens of other plant life. The two grass hunters tramped more than 300 miles through the highlands of Kenya